

Evaluation of periodontal disease in dental students

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Abstract

A cross-sectional study was conducted on dental students at Bahadurgarh, Haryana, for the assessment of periodontal health and possible associated factors. A total of 329 students were examined clinically by periodontists. Students with bleeding on probing and attachment loss ≥ 2 mm were assessed further for extent of bone loss radiographically. The awareness of disease and knowledge of management was also assessed. Sixty-three (19.1%) students showed clinical signs of disease and 21 (6.3%) had cemento-enamel junction (CEJ) to the bone crest distance of ≥ 2 mm. Proximal carious lesions were observed in nine cases of attachment loss. Mottled enamel with a roughened surface had association with attachment loss. The clinical students showed reasonable knowledge of disease and management. The need to strengthen the diagnostics for early detection of periodontal disease in young adults is suggested.

Keywords: Attachment loss, dental students, periodontal disease

Introduction

Periodontal disease affects adolescents and young adults in varying degrees worldwide.^[1-4] Dental students are representative of the educated, urbanized, influential, and motivated class of individuals. The effect of joining a dental profession and its relationship with the personal level of oral health has not shown any correlation.^[5] The fact that the disease can affect younger individuals has been well documented. The younger individuals are more concerned with their major task at hand – education and establishing in a job or profession; in this process the individuals have limited concern for their health and least for dental health. The dental students are expected to be well conversant with issues of health and disease. It is important that the health professional must be well motivated and knowledgeable to impart appropriate attitudes in their community.

The dental professionals are faced with the dilemma of diagnosing conditions relating to periodontal tissues as there are conflicting perceptions of disease, progress, and severity in young adults. The integrity and position of the junctional epithelium shall be the major criteria for determining the status of periodontium. Any breach in the attachment or apical migration of the junctional epithelium marks the initiation of periodontal disease and can be used for its detection. Attachment loss of 1 mm or more can be a predictor for ensuing bone loss. Bitewing radiographs can be a good diagnostic assessment tool of bone loss. An

epidemiological study was planned to establish levels of periodontal conditions in dental students, and to assess the knowledge and understanding of management among affected individuals.

Materials and Methods

The cross-sectional study was conducted on dental students. All the students were examined clinically by the periodontists. Three hundred and twenty-nine dental students of first to fourth year were screened for the presence of periodontitis using the criteria of clinical signs: presence of bleeding on probing and attachment loss of ≥ 2 mm. All four surfaces (mesiofacial, midfacial, distofacial, and lingual) of all posterior teeth were examined. The oral hygiene level of affected students was assessed by using Oral Hygiene Index Simplified (OHI-S).^[6] The presence of proximal caries and mottled enamel in relation to involved teeth was examined.

Bitewing radiographs of the affected individuals were evaluated and the cemento-enamel junction (CEJ) to the crest of bone distance was measured. The subjects were questioned for the awareness of disease, and their understanding of management of disease. The mean and standard deviation (SD) was calculated for variables.

Results

The sample consisted of 329 dental students in the age group 17–22 years [Table 1]. Sixty-three (19.1%) students showed clinical signs of disease [Figure 1]. Twenty-one (6.3%) students had CEJ to the bone crest distance of ≥ 2 mm on bitewing radiographs. Proximal carious lesions were observed in nine clinically affected cases. Mottled enamel was observed in six clinically affected cases. Males were affected more than females on both clinical and radiographic examination. The mesial surface of the mandibular first molar was the most

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affected site. Eighteen (28.6%) students out of 63 clinically affected students were aware of the presence of disease. The observations have been summarized in Table 2.

Discussion

The presence of periodontal disease in adolescents and young adults is a major concern. Various studies on loss of attachment of ≥ 2 mm have reported the prevalence of 2.8–4.9% in Sweden,^[1] 24.5% in USA,^[3] 88.7% in New Mexico,^[4] and 0–14% in England^[7] in 12- to 19-year-old individuals. The prevalence of 19.1% in 17–22 year olds in the present study is similar. The bone loss of > 2 mm on bitewing radiographs was reported as 1–3.5% in Sweden,^[2,8] 3.3–11.3% in Norway,^[9,10] 28% in Brazil,^[11] and 89.2% in New Mexico.^[4] All these studies report a 2-mm threshold of bone loss. The CEJ to bone distance of ≥ 2 mm was observed in 6.3% individuals in our study. A small number of individuals (0.9%) showed CEJ to bone margin distance of 4 mm or more. On radiographic evaluation, the mesial surface of the mandibular first molar was the most affected site in the present study whereas in some other studies, the mesial aspect of the maxillary first molar appeared to be the most frequently affected site.^[11–13] One case (0.3%) showed characteristic arc-like bone loss of localized aggressive periodontitis.

The attachment loss of ≥ 2 mm was seen in 22.3% of preclinical students and 16% of clinical students. CEJ to bone crest distance was similar in preclinical and clinical students. Males (27.3%) were affected more than females (16.8%) in our clinical assessment. This is in accordance with other studies.^[1,3] On evaluating bitewing radiographs, males (8.21%)

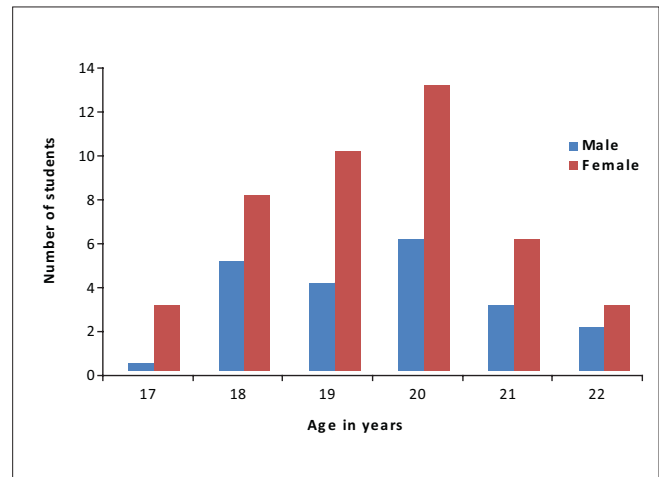


Figure 1: Distribution of clinically affected students

were affected more than females (5.8%) in our study similar to observations made in other studies.^[4,11]

OHI-S scores did not necessarily show any association with the presentation of disease. The proximal caries (nine cases) and mottled enamel with a roughened surface (six cases) had an association with the attachment loss of ≥ 2 mm. These are positively contributory factors to attachment loss. The prevalence of periodontal disease had no relationship with the year of study, i.e. preclinical or clinical. The study of prevalence of disease in dental students has shown similar trends in other study.^[5] The awareness of the presence of disease was poor. The knowledge of disease and its management was more in clinical students.

The study has brought forward the information regarding the prevalence of disease in young adults and association with caries and mottled enamel. The clinical attachment loss of 1 mm or more precedes the changes in the crestal bone level; highlighting such information is important for careful examination and appropriate diagnosis. Since the disease progresses silently, the risk assessment of young individuals is paramount to the health.

Table 1: Distribution of sample

Year	No.			Age in years (range/mean \pm SD)
	M	F	Total	
I	27	71	98	17–21/18.173 \pm 0.883
II	08	60	68	19–21/19.397 \pm 1.315
III	11	66	77	19–22/20.103 \pm 0.777
IV	27	59	86	20–22/21.320 \pm 1.078
Total	73	256	329	17–22 /20.210 \pm 1.614

Table 2: Observations of various parameters on students affected with periodontitis

Year of the study	No. of students with bleeding on probing and attachment loss			OHI-S mean \pm SD	No. of students with proximal caries	No. of students with mottled enamel	No. of students with radiographic finding of CEJ to bone ≥ 2 mm			No. of students with awareness of disease			No. of students with knowledge and understanding of management		
	M	F	Total				M	F	Total	M	F	Total	M	F	Total
I	09	15	24	1.87 \pm 0.80	03	01	01	04	05	01	03	04	01	02	03
II	04	09	13	1.61 \pm 0.59	01	02	01	03	04	00	01	01	00	01	01
III	02	12	14	1.73 \pm 0.178	03	00	01	08	09	00	06	06	00	04	04
IV	05	07	12	1.38 \pm 0.50	02	03	03	00	03	04	03	07	04	03	07

Conclusions

A study of prevalence of periodontal disease, related factors, and knowledge and understanding of management was conducted on 329 dental students. A total of 63 (19.1%) students showed the clinical signs of disease, and 21 (6.3%) had a threshold of ≥ 2 mm CEJ to the bone crest distance. The presence of proximal caries was associated with attachment loss in nine cases. The mottled enamel with surface roughness had an association with the attachment loss in six cases. The need for careful diagnostics is emphasized.

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